

Remarks

Reconsideration of this application is respectfully requested.

Claim 14 has been amended to more clearly describe the present invention. Support for this amendment can be found in Experiments 5 and 6 on pages 41 and 42 of the specification. Also, Claim 19 has been amended to correct an inadvertent error.

The rejection of Claim 14 as being anticipated by Peterson et al. (EP 469 735 A2), under 35 U.S.C. 102(b), is respectfully traversed. Claim 14 recites a method for thermal processing of a photosensitive element. The photosensitive element includes a flexible substrate and a composition layer on the substrate capable of being partially liquefied. The method includes the steps of supplying an absorbent material to the composition layer with a roller operating at a temperature T_r that heats the absorbent material; delivering the element to the absorbent material on a rotating drum; heating the exterior surface of the composition layer sufficient to cause a portion of the layer to liquefy with a heater operating at a temperature T_h ; pressing the element and the absorbent material into contact between the drum operating at a rotation speed S and the roller at a pressure P ; separating the element from the absorbent material; repeating the supplying, delivering, heating, pressing and separating steps for a predetermined number of cycles; and changing at least one of the process parameters selected from the group consisting of temperature of the roller T_r , temperature of the heater T_h , pressure P , and rotation speed S , during at least one of the supplying, delivering, heating, and pressing steps for at least one of the predetermined number of cycles. Heating of the composition layer can occur by any one, or combination of, the hot roller, a heater associated with the drum, and a radiant heater applying heat to the exterior surface of the composition layer adjacent where the absorbent material contacts the layer at the hot roller.

Peterson et al. disclose a device and method for forming a flexographic printing plate from a preformed imagewise irradiated sheet of film. The device includes a heating means for supplying heat to the film, a first delivery means for delivering a sheet of absorbent material to a surface of the film, a second delivery means for supplying film to the heating means, pressure means for causing liquefied material to be absorbed onto absorbent material, and a separation means for separating the absorbent material from the film. Peterson et al. disclose only preheating the drum and heating the hot roller that delivers the absorbent material as means for heating. In the thermal development method, the cycle of supplying, delivering the absorbent material, delivering the film, pressing, and separating is preferably repeated 3 times in order to remove all the molten polymer. The cycle can be repeated more or less than 3 times to remove all the molten polymer by selecting a different and more absorbent material, and by varying other parameters such as the thickness of the layer to be

removed. Peterson et al. disclose that when a trailing edge of the flexible film passes out of the nip (at the end of one cycle), a controller moves the hot roller away from the drum and rapidly advances the film (on the drum) again so that a leading edge of the film is returned to the nip. The rapid advance of the drum rotates the drum at 3 to 4 times the normal speed to save time and improve machine capacity. After the rapid advance of the drum to bring the film to the next cycle, it is understood that the rotation speed of the drum while the film and absorbent web are in nip contact is the same from cycle to cycle for a given film.

Peterson et al. do not show or suggest *changing at least one of the process parameters selected from the group consisting of temperature of the roller Tr, temperature of the heater Th, pressure P, and rotation speed S, during at least one of the supplying, delivering, heating, and pressing steps for at least one of the predetermined number of cycles*, as recited in Claim 14. Peterson et al. certainly do not teach or even suggest that one or more of the process conditions including temperature of the preheat drum, temperature of the hot roller, and pressure can be changed for one or more of cycles of the rotating drum when forming flexographic printing plate. Peterson et al. also do not teach or suggest heating with a radiant heater that applies heat to the exterior surface of the composition layer adjacent where the absorbent material contacts the layer at the hot roller, and that the temperature of the radiant heater can be changed during the steps conducted in one or more of the cycles to form the plate. Although Peterson et al. do suggest increasing the rotational speed of the drum to quickly advance the leading edge of the film to the nip, the increased drum speed is only conducted after the step of separating the absorbent material from the film (i.e., photosensitive element) to before the next step of pressing of the absorbent material to the film. As such, Peterson et al. do not teach or even suggest changing the rotation speed of the drum for at least one of the predetermined number of cycles of the pressing step that brings the photosensitive element into contact with the heated absorbent material. Claim 14 has now been amended to specifically recite that the drum operates at a rotational speed, S, for the pressing step which brings the photosensitive element and the heated absorbent material into contact.

Furthermore, Applicants have discovered unexpected improvements to the relief printing element resulting from thermal development by changing the process parameters for at least one of the predetermined number of cycles. In the Performance Studies conducted on the inventive apparatus, Experiments 5 and 6 described in the specification on pages 41 through 44, showed that varying process parameters (i.e., pressure, temperature of the radiant heat (via power to infrared bulbs), and drum speed) from one cycle to the next can change the maximum surface temperature (Max Surf Temp) and the maximum base temperature (Max Base Temp) experienced by the photosensitive element during thermal development when compared to the same for Experiment 2 where the process parameters were the same for all 9

cycles. In this case, the relatively low maximum base temperature can provide benefits to the relief forming printing element, such as for example, reduced thermal distortion of the support in the element. Further, the use of the radiant heater for providing a portion of the heat to the composition layer is beneficial since the radiant heater can quickly respond to temperature changes from one cycle to the next. Thus, by changing the process parameters from for at least one of the predetermined number of cycles necessary to form the relief structure in the printing element, the conditions experienced by a particular photosensitive element during the thermal development process can be beneficially controlled to minimize any detrimental impact of excessive heat and/or to improve the resulting relief printing element.

The rejection of Claim 15 as being unpatentable over Peterson et al., under 35 U.S.C. 103(a), is respectfully traversed. The Examiner has stated that there is no teaching in Peterson et al. of a forced cooling step as required in the present application, but that it would have been obvious to one of ordinary skill in the art to incorporate a cooling step after the absorbent material is separated from the film to minimize damage of the imaged [film] and to obtain a cooled film that can be handled soon after separation. The present method for forming a relief pattern which further comprises forcefully cooling the photosensitive element after separating the element from the absorbent material, as recited in Claim 15, is not obvious from the teaching of Peterson et al. because there is no teaching, suggestion or incentive in Peterson et al. to support such a step. The reasons for a cooling step that were provided by the Examiner are not suggested in anyway by Peterson et al. There is no acknowledgement by Peterson et al. of damage to the imaged film due to heat, nor that it is necessary to cool the film for handling. Also, as discussed above, Peterson et al. do not show or suggest changing at least one of the process parameters selected from the group consisting of temperature of the roller Tr, temperature of the heater Th, pressure P, and rotation speed S, during at least one of the supplying, delivering, heating, and pressing steps for at least one of the predetermined number of cycles, *and to further include changing the temperature Tc of the cooling means as one of the process parameters in the group.* And since Claim 15 incorporates the distinctive limitations recited in Claim 14 for patentable novelty, the allowance of Claim 15 over Peterson et al. appears to be in order for at least the reasons given with respect to Claim 14.

Reconsideration and allowance of this application are respectfully requested.

Respectfully submitted,



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Dated: May 4, 2004